AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A method of operating a fuel cell system having a fuel cell stack operable to produce an electric current, the method comprising:

(a) producing a power output with the fuel cell stack to meet a first power demand placed on the fuel cell system;

(b) detecting a decrease in said first power demand placed on the fuel cell system to a lower second power demand;

(c) routing an excess power output of the fuel cell stack, resulting from a current fuel cell stack output exceeding the second power demand, to a component of the fuel cell system, the component operating with the excess power output at a power level greater than that required to support the second power demand placed on the fuel cell system; and

(d) gradually reducing said power output of the fuel cell stack to meet ~~said decreased~~ the second power demand placed on the fuel cell system while simultaneously performing (c).

2. (currently amended) The method of claim 1, wherein (c) includes routing at least a portion of said excess power output to a coolant pump motor in the fuel cell system and operating the coolant pump motor at an output level greater than required to support the second power demand placed on the fuel cell system .

3. (original) The method of claim 2, wherein (c) includes operating said coolant pump motor at its maximum output.

4. (currently amended) The method of claim 1, wherein (c) includes routing at least a portion of said excess power output to a radiator fan motor in the fuel cell system and operating the radiator fan motor at an output level greater than required to support the second power demand placed on the fuel cell system.

5. (original) The method of claim 4, wherein (c) includes operating said radiator fan motor at its maximum output.

6. (currently amended) The method of claim 1, wherein (c) includes routing at least a portion of said excess power output to at least one heater in the fuel cell and operating the heater at an output level greater than required to support the second power demand placed on the fuel cell system.

7. (cancelled)

8. (original) The method of claim 1, wherein (d) includes maintaining a pressure differential between an anode and cathode flow in the fuel cell stack below a predetermined value.

9. (original) The method of claim 1, wherein (d) includes maintaining a relative humidity in the fuel cell stack within a predetermined range.

10. (original) The method of claim 9, wherein (d) includes maintaining said relative humidity in the fuel cell stack between about 70 to 100 percent.

11. (cancelled)

12. (original) The method of claim 1, wherein the fuel cell system includes an energy storage device and (c) includes routing said excess power output to said energy storage device.

13. (original) The method of claim 1, wherein (c) includes routing as much excess power output of the fuel cell stack as possible to a coolant pump motor in the fuel cell system, routing as much as possible of any remaining excess power output to a radiator fan motor in the fuel cell system, routing as much as possible of any remaining excess power output to a heater in the fuel cell stack, and routing any remaining excess power output to other components in the fuel cell system.

14. (currently amended) A method of managing a pressure differential between anode and cathode flow fields in a fuel cell stack of a fuel cell system during a downward transient in a power demand placed on the fuel cell system, the method comprising:

(a) detecting a decrease in the power demand to a lower power demand;

(b) ~~routing an excess power output of the fuel cell stack to a component of the fuel cell system~~

gradually reducing a power output of the fuel cell stack to meet the lower power demand placed on the fuel cell system, while maintaining a pressure differential between the anode and cathode flow fields below a predetermined value; and

(c) ~~gradually reducing a power output of the fuel cell stack to meet said decreased power demand placed on the fuel cell system while maintaining a pressure differential between the anode and cathode flow fields below a predetermined value~~

routing an excess power output of the fuel cell stack, resulting from a difference between the power output of the fuel cell stack in (b) and the lower power demand placed on the fuel cell system in (a), to a component of the fuel cell system.

15. (currently amended) The method of claim 14, wherein [[(b)]] (c) includes routing at least a portion of said excess power output to a coolant pump motor in the fuel cell system and operating the coolant pump motor at an output level greater than required to support the lower power demand placed on the fuel cell system.

16. (currently amended) The method of claim 14, wherein [[(b)]] (c) includes routing at least a portion of said excess power output to a radiator fan motor in the fuel cell system and operating the radiator fan motor at an output level greater than required to support the lower power demand placed on the fuel cell system.

17. (currently amended) The method of claim 14, wherein [[(b)]] (c) includes routing at least a portion of said excess power output to at least one heater in the fuel cell system and operating the heater at an output level greater than required to support the lower power demand placed on the fuel cell system.

18. (currently amended) The method of claim 14, wherein [[(b)]] (c) includes operating said component of the fuel cell system at its maximum setting.

19. (currently amended) The method of claim 14, wherein the fuel cell system includes an energy storage device and [[(b)]] (c) includes routing said excess power output to said energy storage device.

20. (original) The method of claim 14, wherein (b) and (c) are performed substantially concurrently.

21. (currently amended) The method of claim 14, wherein [[(b)]] (c) includes routing as much excess power output of the fuel cell stack as possible to a coolant pump motor in the fuel cell system, routing as much as possible of any remaining excess power output to a radiator fan motor in the fuel cell system, routing as much as possible of any remaining excess power output to a heater in the fuel cell stack, and routing any remaining excess power output to other components in the fuel cell system.

22-30. (cancelled)

31. (new) A method of operating a fuel cell system having a fuel cell stack operable to produce an electric current, the method comprising:

(a) producing a power output with the fuel cell stack to meet a first power demand placed on the fuel cell system;

(b) operating at least one component of the fuel cell system at a first power consumption level corresponding to the first power demand placed on the fuel cell system;

(c) detecting a decrease to a second power demand placed on the fuel cell system, the second power demand corresponding to a second power consumption level of the at least one component of the fuel cell system;

(d) maintaining the power output of the fuel cell stack at a level to meet a power demand greater than the second power demand placed on the fuel cell system, resulting in an excess power output by the fuel cell stack;

(e) routing the excess power output of the fuel cell stack to the component of the fuel cell system;

(f) gradually reducing the power output of the fuel cell stack to the second power demand placed on the fuel cell system; and

(g) operating the at least one component at a power consumption level which is greater than the second power consumption level to consume the excess power output of the fuel cell stack.

32. (new) The method of claim 31, wherein (e) includes routing at least a portion of the excess power output to a coolant pump motor in the fuel cell system.

33. (new) The method of claim 32, wherein (g) includes operating the coolant pump motor at its maximum output.